A Novel Approach to Estimating the Age of the Universe By Precisely Quantifying Hypothesized Gravitational Acceleration Effects

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## Introduction

Basic hypotheses laid out in the publication of 5 January 2024 concerning neutrino-bias-based acceleration may be used in conjunction with knowledge of the dynamics of nano- scale gravity in order to make a rough estimate of the age of the universe which is more accurate than previous estimates, largely because of this author's ability to deduce that the most natural absolute velocity for galaxies in the universe is 50% of C rather than 25% of C, which is the currently accepted estimate.

## Abstract

Because the neutrino-bias accelerative effect is only accelerative up to 50% of C and is decelerative beyond this point, it is highly likely that all galaxies have a tendency to move at a velocity of nearly exactly 50% of C and that this has been true since nearly the beginning of the universe as it would not have taken long for this form of acceleration to amount to the velocities currently experienced.  In fact, we can form a rough estimate of how pronounced this accelerative effect was in the early universe.  We can use the variability in the distance between the nearest and farther electron orbiting uranium, the heaviest natural element, in order to establish general principles about the sort of distances over which electrons can form as a result of nano- scale gravity fields.  Quantifying the scale of nano-gravity is essential for quantifying gravitational acceleration or the "accelerative inertia," to put it another way.

If we assume that there was some initial velocity associated with matter being introduced to our universe; likely far less than suggested by the "Big Bang Theory;" and we assume that this was on the order of 4,000 meters per second, we can use our knowledge of inertia and the angle of bias implied by a velocity of 4,000 meters per second in order to infer the the rate of acceleration in the early universe; a rate which would have increased steadily over time.  Importantly, this author contends that the velocities associated with matter forming in the early universe were equivalent to that associated with overpressure waves and that this was not the highly energetic event the Big Bang Theory suggests.

Hydrogen atoms have an orbital diameter of 1.1 Angstroms and uranium electrons can confer to eletrons an orbital diameter of up to 3.5 Angstroms.  It stands to reason that the nearest of the electrons associated with uranium could be somewhat more distant from the nucleus than 1.1 Angstroms as a result of the higher degree of gravitational energy lending itself to a more alacritous formation of electrons beginning from a greater distance from the nucleus.  In any case, we can say as a general principle that electrons begin to form as a result of the materialization of neutrinos generated up to 1.25

Angstroms outside of the outermost electrons' orbital radius. In the case of hydrogen, you have a single electron which is .55 Angstrom from the proton but which features a Higgs field which likely extends to a maximum limit of about double that distance. We will also assume for our purposes that, the proportion of of neutrino energy originating from increasingly distant points follows an inverse square law, with about two-thirds of the gravitational energy manifested by the presence of a proton originating in the nearest 50% of total area from which the associated neutrinos originate and the other 50% originating from the most distance one-third of that space. From this, we can infer that if a hydrogen atom in the early universe were set in motion at a velocity of 4,000 meters per second and that the velocity of a neutrino which moves at light speed and originates from an average position which is .7315 Angstrom away from that proton, that the proton will have moved by a distance of 1.3 thousandths of a percent of the distance which the neutrinos associated with its gravity could have moved in the same frame of time.

This, as explained in a previous paper, biases the strike position of the neutrinos against the proton, the negligible diameter of the proton being relevant but trivial for this calculation. The proportional difference between the distance traveled by the proton through space (at a mere 4,000 meters per second at the outset of the universe) and the light speed constant allows us to calculate the thrust-to-weight ratio of this accelerative effect. If an object being accelerated with a 1:1 thrust to weight ratio accelerates by about 9 meters per second and we take that nine meters per second and extrapolate from an amount which begins as being (x 0.000013) of that value, we get 0.1 millimeters per second, (roughly) as an initial acceleration vector. With each doubling of speed, the rate of acceleration would, roughly, double. To achieve the first doubling of speed, from 4,000 meters per second, would require 33.333 million seconds, which is 385 days. If true, this hypothesis would mean that we can infer that the velocity of matter in the early universe went, if we assume an initial velocity of 4,000 meters per second, the universe would, at this steady rate of acceleration be moving at least 8,000 meters per second by the end of the first year. Because the rate of acceleration would be continual, the gradient of acceleration would actually be a little steeper than this and we would be talking about a doubling of velocity about once every seven months. At a rate of doubling every seven months, we can project by dividing half the speed of light (150,000,000 meters per second) by 4,000 and by multiplying that value by seven months, giving us a value of 37,500 doubling-times. By multiplying, therefore, 37,500 doubling times by seven months, we get quotient, in years, of 21,875, meaning that early galaxies attained the 50% C cruising velocity by about 21,875 of our years after the inception of the universe. If we have been moving at 50% of the speed of light consistently since that time and the most distant galaxies are estimated to be 13.4 Billion light-years away (implying a universal diameter of double this value, at minimum) then the most distant galaxies must have traversed a minimum of 26.8 Billion light-years of distance at a velocity of half of the speed of light for nearly the entire journey. This would put the age of the universe at at minimum of 26.8 Billion years x 2 (as we're moving at exactly half of the speed of light) plus 21,875. We then subtract 21,875 years because the rate of acceleration would actually gradually diminish for the portion of that acceleration between 25% of C and the sustained maximum of 50% of C. Although it is interesting to know how long this accelerative process required

to reach the peak speed of 50% of C, this specific value has no bearing on this author’s estimate on the age of the universe.

The accuracy of this estimate, of course, depends upon having an accurate estimate of distance for observable galaxies. Our astronomers have made some general assumptions about the brightness of a standard star and about the average number of stars in a galaxy and used this to infer distance from brightness, suggesting that our estimate is likely accurate for the distance of those galaxies. Even with the advent of more sensitive photodetectors since the Hubble Space Telescope, no galaxies of dramatically greater apparent distance have been detected than those in the range of 13-14 Billion Light Years. This would seem to rule out the possibility that there are more distant objects which we simply could not see due to limits on the maximum traveling distance of light. However, if that distance estimate is predicated upon an assumption that we are moving at only 25% of the speed of light, we must once again, if this author’s 50% hypothesis is correct, double those estimates. This would take my final estimate of the age of the universe to 107.2 Billion years.

I predicate this estimate upon a set of universal constants, some of which are firmly established but which were not previously considered in the context of estimating the age of the universe, as well as a constant which would form a novel corollary the accepted model of inertia which is not generally accepted as of the present date. As these constants could be measured in a laboratory and do not require guesswork based upon photographic observations beyond making a few assumptions about the brightness of average galaxies, they allow us to better estimate our own overall velocity through the universe, thus giving us the more accurate estimated value of about 107.2 Billion years for the age of the universe.